What is Claimed is:

1. A circuit that sinks or sources output current responsive to input current, wherein the output current is proportional to the input current, the circuit comprising:

a first current mirror having a first current range, the first current range having a maximum range magnitude;

a second current mirror having a second current range; and

an initiation circuit coupled to the first and second current mirrors, the initiation circuit configured automatically to (1) detect when the magnitude of the input current equals or exceeds a maximum current level and (2) activate the second current mirror responsive thereto.

2. The circuit of claim 1, wherein the maximum current level does not equal the maximum range magnitude.

3. The circuit of claim 1, wherein the first and second current mirrors are coupled so that the aggregation of individual output currents provided by the first and second current mirrors equal the output current.

4. The circuit of claim 1, wherein the first and second current mirrors comprise cascode current mirrors.

5. The circuit of claim 1, wherein the initiation circuit comprises a first transistor coupled

to the second current mirror, the first transistor having a first threshold voltage, and an operational amplifier that outputs an output signal, the first transistor configured to activate the second current mirror responsive to the output signal exceeding the first threshold voltage.

6. The circuit of claim 5, wherein the initiation circuit comprises a second transistor coupled to the first current mirror and to the operational amplifier, the second transistor having a second threshold voltage that is less than the first threshold voltage, the second transistor configured to activate the first current mirror responsive to the output signal exceeding the second threshold voltage.

7. The circuit of claim 1, further comprising an input terminal having an input terminal voltage and an operational amplifier that servos the input terminal voltage at a reference voltage.

8. The circuit of claim 7, further comprising a transistor coupled to the input terminal, wherein the transistor is configured to deactivate the first current mirror when the input terminal voltage equals or exceeds the reference voltage.

9. The circuit of claim 8, wherein the transistor is configured to deactivate the second current mirror when the input terminal voltage equals or exceeds the reference voltage.

10. The circuit of claim 1, further comprising a compensation network.

11. The circuit of claim 1, wherein the magnitude of the maximum current level is less than that of the maximum range magnitude.

12. The circuit of claim 1, wherein the initiation circuit comprises a third current mirror configured to source or sink a comparison current when the magnitude of the input current equals or exceeds the maximum current level.

13. The circuit of claim 12, wherein the magnitude of the comparison current equals the magnitude of the maximum current level.

14. The circuit of claim 1, wherein the magnitude of the maximum current level equals the magnitude of the maximum range magnitude.

15. The circuit of claim 1, wherein the first and second current ranges do not overlap.

16. The circuit of claim 1, wherein the first and second current ranges overlap at the maximum range magnitude.

17. A method for sourcing or sinking output current responsive to input current, wherein the output current is proportional to the input current, the method comprising:

providing a first current mirror having a first current range, the first current range having a maximum range magnitude, and a second current mirror having a second current range;

mirroring the input current with the first current mirror;

automatically detecting when the magnitude of the input current equals or exceeds a maximum current level;

automatically activating the second current mirror responsive to detection that the magnitude of the input current equals or exceeds the maximum current level; and

mirroring at least a fraction of the input current with the second current mirror.

18. The method of claim 17, further comprising:

automatically detecting when the magnitude of the input current drops below the maximum current level; and

automatically deactivating the second current mirror responsive to detection that the magnitude of the input current has dropped below the maximum current level.

19. The method of claim 17, wherein automatically detecting when the magnitude of the input current equals or exceeds a maximum current level comprises automatically detecting when the magnitude of the input current equals or exceeds the maximum range magnitude.

20. The method of claim 17, wherein automatically detecting when the magnitude of the input

current equals or exceeds a maximum current level comprises automatically detecting when the magnitude of the input current equals or exceeds a value less than the maximum range magnitude.

21. The method of claim 17, wherein the first and second current mirrors incorporate cascode transistors, the method further comprising biasing the cascode transistors.

22. The method of claim 17, wherein providing further comprises providing an operational amplifier and a transistor coupled to the second current mirror, the transistor having a threshold voltage, and wherein automatically activating the second current mirror comprises:

outputting an output signal from the operational amplifier, the output signal responsive to the input current; and

automatically activating the second current mirror after the output signal equals or exceeds the threshold voltage.

23. The method of claim 17, wherein providing further comprises providing an input terminal coupled to the first current mirror, the input terminal having an input terminal voltage, the method further comprising servoing the input terminal voltage at a reference voltage.

24. The method of claim 23, further comprising deactivating the first current mirror when

the input terminal voltage equals or exceeds the reference voltage.

25. The method of claim 17, wherein automatically detecting when the magnitude of the input current equals or exceeds a maximum current level comprises:

generating a detection signal responsive to the input current; and

compensating the detection signal.

26. The method of claim 17, wherein providing further comprises providing a third current mirror configured to source or sink a comparison current, and wherein automatically detecting when the magnitude of the input current equals or exceeds a maximum current level comprises sourcing or sinking a comparison current when the magnitude of the input current equals or exceeds the maximum current level.